

WHAT IS CLAIMED IS:

1. A diathermic snare used in combination with an endoscope, the endoscope including an inserting section which is inserted into a body cavity and which has a distal end and a proximal end, and a cylindrical cap section mounted on the distal end of the inserting section, the cap section having a distal end, a proximal end and an engagement projection having a bending portion that bends inward at the distal end of the cap section,
wherein the diathermic snare comprises:
an elongated flexible sheath having a distal end and a proximal end;
an operating wire inserted into the sheath so as to move forward and backward and having a distal end and a proximal end;
a snare wire coupled to the distal end of the operating wire and having a loop section which expands like a loop;
an operating section coupled to the proximal end of the sheath and including a guide member extending in an axial direction of the sheath and a slider which moves forward and backward in the axial direction of the sheath along the guide member and which is coupled to the proximal end of the operating wire; the loop section of the snare wire projecting from the distal end of the sheath, the snare wire expanding like a

loop, and the loop section expanding along an inner
circumference of the engagement projection when the
slider moves toward along the guide member; and the
loop section being stored in the sheath when the slider
5 moves backward along the guide member; and

a bending portion provided at the distal end of
the loop section, the bending portion ending in a
direction that intersects a plane formed by the loop
section and conforming to a corner of the bending
10 portion of the engagement projection when the loop
section expands along the inner circumference of the
projection.

2. A medical instrument system using a diathermic
snare and an endoscope in combination with each other,
15 the endoscope including an inserting section which is
inserted into a body cavity and which has a distal end
and a proximal end, and a cylindrical cap section
mounted on the distal end of the inserting section, the
cap section having a distal end, a proximal end and an
20 engagement projection having a bending portion that
bends inward at the distal end of the cap section,

wherein the medical instrument system comprises:

an elongated flexible sheath having a distal end
and a proximal end;

25 an operating wire inserted into the sheath so as
to move forward and backward and having a distal end
and a proximal end;

a snare wire coupled to the distal end of the operating wire and having a loop section which expands like a loop;

an operating section coupled to the proximal end
5 of the sheath and including a guide member extending in an axial direction of the sheath and a slider which moves forward and backward in the axial direction of the sheath along the guide member and which is coupled to the proximal end of the operating wire; the loop
10 section of the snare wire projecting from the distal end of the sheath, the snare wire expanding like a loop, and the loop section expanding along an inner circumference of the engagement projection when the slider moves toward along the guide member; and the
15 loop section being stored in the sheath when the slider moves backward along the guide member; and

a bending portion provided at the distal end of the loop section, the bending portion bending in a
direction that intersects a plane formed by the loop
20 section and conforming to a corner of the bending portion of the engagement projection when the loop section expands along the inner circumference of the projection.

3. The medical instrument system according to
25 claim 2, wherein the cap section has a main body that is made of transparent materials.

4. The medical instrument system according to

claim 2, wherein the engagement projection has a flange-shaped engagement projection that projects toward an inner surface of the cap section in proximity to a leading edge of the cap section.

5 5. The medical instrument system according to claim 2, wherein:

the cap section has a fixing section at the proximal end thereof, the fixing section being fixed to a distal end of the endoscope; and

10 the medical instrument system further comprises a soft tube having an open distal end and an open proximal end, the soft tube being arranged alongside the inserting section of the endoscope when the fixing section is fixed to the distal end of the endoscope,
15 and the open distal end communicating with an inside of the cap section.

20 6. The medical instrument system according to claim 2, wherein the bending portion of the loop section bends at a bend angle which is almost perpendicular to the plane formed by the loop section.

7. The medical instrument system according to claim 2, wherein the bending portion of the loop section bends at an acute bend angle corresponding to an acute angle to the plane formed by the loop section.

25 8. The medical instrument system according to claim 2, wherein:

the cap section has an inclined plane

corresponding to a plane of the distal end of the cap section which is inclined to the axial direction of the sheath; and

5 the bending portion of the loop section bends in the axial direction of the sheath.

9. The medical instrument system according to claim 8, wherein the plane formed by the loop section has an inclination angle that is set such that the plane is almost parallel to the inclined plane of the cap section.

10

10. The medical instrument system according to claim 8, wherein:

15 the inclined plane of the cap section inclines at an acute angle in the axial direction of the sheath; and

 the bending portion of the loop section bends at a bend angle that is equal to an inclination angle of the inclined plane.

11. The medical instrument system according to claim 2, wherein the loop section has a diameter that is equal to an inside diameter of the cap section.

20

12. The medical instrument system according to claim 2, wherein the loop section rotates around an axis of the sheath.

25 13. A method of assembling a medical instrument system using a diathermic snare and an endoscope in combination with each other,

the endoscope including an elongated inserting
section which is inserted into a body cavity and which
has a distal end and a proximal end, and a cylindrical
cap section mounted on the distal end of the inserting
5 section,

the cap section having a distal end, a proximal
end, an engagement projection having a bending portion
that bends inward at the distal end of the cap section,
a fixing section provided at the proximal end of the
10 cap section and fixed to a distal end of the endoscope,
and a soft tube having an open distal end and an open
proximal end, the soft tube being arranged alongside
the inserting section of the endoscope when the fixing
section is fixed to the distal end of the endoscope,
15 and the open distal end communicating with an inside of
the cap section,

the diathermic snare including an elongated
flexible sheath having a distal end and a proximal end,
an operating wire inserted into the sheath so as to
20 move forward and backward and having a distal end and a
proximal end, a snare wire coupled to the distal end of
the operating wire and having a loop section which
expands like a loop, an operating section coupled to
the proximal end of the sheath and including a guide
25 member extending in an axial direction of the sheath
and a slider which moves forward and backward in the
axial direction of the sheath along the guide member

and which is coupled to the proximal end of the
operating wire, the loop section of the snare wire
projecting from the distal end of the sheath, the snare
wire expanding like a loop, and the loop section
5 expanding along an inner circumference of the
engagement projection when the slider moves toward
along the guide member, and the loop section being
stored in the sheath when the slider moves backward
along the guide member, and a bending portion provided
10 at the distal end of the loop section, the bending
portion bending in a direction that intersects a plane
formed by the loop section and conforming to a corner
of the bending portion of the engagement projection
when the loop section expands along the inner
15 circumference of the projection, and

the plane formed by the loop section inclining in
the axial direction of the sheath and the loop section
rotating around an axis of the sheath,

comprising:

20 a diathermic snare inserting step of mounting the
cap section on the endoscope, then inserting the
diathermic snare into the tube, and projecting the
distal end of the sheath forward from the cap section;

a loop section projecting step of projecting the
25 loop section from the sheath while the distal end of
the sheath is projected from the cap section;

a loop section direction adjusting step of

rotating the loop section around an axis of the sheath
when necessary and adjusting a direction of the loop
section;

5 a retracting step of retracting the loop section
into the cap section;

 a cap section pressing step of pressing a leading
edge of the cap section against an object; and

10 a loop section setting step of pushing the sheath
to bring the loop section into intimate contact with
the engagement projection and expanding the loop
section circularly along the engagement projection.